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ABSTRACT

Prior research has established that gender differences in self-perceptions exist. It was hypothesized that self-consistency tendencies can partially explain gender differences in self-evaluations. College students (N=488) were presented with either a feminine, masculine, or neutral gender-typed task, each containing 35 multiple-choice questions. Subjects were randomly assigned to conditions and tasks. In the control condition subjects stated performance expectancies, performed the task, and then estimated the number of correctly answered questions (self-evaluation). According to self-consistency theory, subjects' expectancies should affect their post-task self-evaluations. Results confirmed this hypothesis. It was also assessed whether biased recall of one's performance on individual questions can partially explain gender differences in the accuracy of self-evaluations. It was found that indeed males were relatively more likely than females to recall those questions which they wrongly believed that they had answered correctly. Because of the serious implications of underestimations of performance for self-confidence and psychological health more attention should be devoted to the investigation of gender differences in the accuracy of self-evaluations. Such research will not only elucidate the underlying processes of self-evaluation biases, but will also be of practical value by suggesting ways of eliminating women's underestimations of performance. (ABL)

Self-consistency and Gender Differences in the Accuracy of Self-evaluations

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Abstract

Prior research has established that gender differences in self-perceptions exist. For example, women's post-task self-evaluations of performance are lower than men's, especially on masculine gender-typed tasks (Beyer, 1990a, 1990b). It was hypothesized that self-consistency tendencies can partially explain gender differences in self-evaluations. According to self-consistency theory, subjects' expectancies should affect their post-task self-evaluations. The results confirmed this hypothesis. It was also assessed whether biased recall of one's performance on individual questions can partially explain gender differences in the accuracy of self-evaluations. It was found that indeed males were relatively more likely than females to recall those questions which they wrongly believed they had answered correctly.

Introduction

Women have lower expectancies of success than men (Beyer, 1990a, 1990b; Mura, 1987). It has been suggested that women's low expectancies are indicative of their tendency to underestimate their abilities (Carr, Thomas, & Mednick, 1985). Research on causal attributions has also produced evidence for women's underestimation of abilities. Women tend to attribute success more externally (Meehan & Overton, 1986), or more to effort rather than ability, than men (Parsons, Meece, Adler, & Kaczala, 1982; LaNoue & Curtis, 1985). By making external attributions for success, women are not taking credit for their performance, thereby showing a "self-derogatory" bias (Erkut, 1983). Women also have lower post-task self-evaluations of performance than men do. These self-evaluations are in fact inaccurately low on masculine gender-typed tasks (Beyer, 1990a, 1990b). Why do women inaccurately assess i.e., underestimate their performance on masculine tasks?

According to self-consistency theory, a person's expectancy for success at a task affects how performance on that task is interpreted. Thus, initial level of confidence (expectancy) has a biasing effect on post-task self-evaluations. Therefore, because women have low expectancies for masculine tasks (Beyer, 1990a, 1990b; Janman, 1987), they should evaluate their performance negatively. Conversely, men's high expectations should lead to high self-evaluations. Based on prior research (Beyer, 1990a, 1990b), it is also hypothesized that although both genders will show self-consistency biases, women will show even stronger self-consistency tendencies than men.

Besides self-consistency tendencies, a second process may affect women's self-evaluations negatively. It is possible that when evaluating their overall performance on masculine gender-typed tasks, women's recall of previously answered questions is biased. Conceivably women remember mostly those questions they believe they answered incorrectly, whereas men remember the questions they believe they answered correctly. This process could bias women towards underestimation of their performance.

This experiment also was designed to determine whether women's inaccurately low self-evaluations would only be manifested when making overall self-evaluations or also when assessing their self-evaluations on individual questions of a test.

In summary, this experiment tested the following hypotheses: 1. Self-consistency tendencies can predict gender differences in self-evaluations. Women are hypothesized to show stronger self-consistency tendencies than men. 2. On the masculine task, women underestimate their performance because they remember more of the questions they believe they answered incorrectly than men. 3. Women will show lower self-evaluations than men when evaluating overall performance and when evaluating performance for individual questions.

Method

Subjects. Subjects were 163 female and 164 male students at the University of Oregon and 112 female and 49 male students at the

University of Michigan-Flint.

Tasks. Subjects were presented with either a feminine, masculine, or neutral gender-typed task, each containing 35 multiple-choice questions. The masculine gender-typed task contained sports questions, the feminine gender-typed task questions on stars in show business, and the neutral task questions on literature and geography. Based on pretesting, the tasks were constructed so that men (women; both genders) would answer approximately 75% of the questions correctly on the masculine (feminine; neutral) task and 60% correctly on the feminine (masculine) task.

Procedure. Subjects were randomly assigned to conditions and tasks. In the control condition subjects stated performance expectancies, performed the task, then estimated the number of correctly answered questions (self-evaluation). They then recalled as many of the questions that had appeared on the task as possible and indicated for each recalled question, whether they believed they had answered this question correctly or incorrectly.

There was only one addition to this procedure in the experimental condition. Immediately after answering each of the 35 questions, subjects stated how confident they were of having answered that particular question correctly. Confidence ratings could range from 0% to 100% sure. Only after completing these 35 ratings of question confidence did experimental subjects evaluate their overall performance.

Results

Accuracy of self-evaluations. Accuracy of self-evaluations was assessed by subtracting performance from self-evaluation scores. Women and men did not differ significantly in the accuracy of self-evaluations on the feminine task, $F(1, 146) < 1$, or the neutral task, $F(1, 167) < 1$. As predicted, the only significant gender difference in accuracy of self-evaluations appeared on the masculine gender-typed task, $F(1, 163) = 22.98$, $p < .0001$. Men's self-evaluations were accurate, whereas women significantly underestimated their performance (see Table 1).

Self-consistency hypothesis. Self-evaluation was regressed on expectancy, performance, gender, and all the interaction terms in multiple regression analyses for each task. After partialling out the effect of performance, expectancies accounted for a significant amount of variance on all three tasks in the experimental condition, $Fs(1, 85) > 6.19$, $ps < .02$, and the control condition, $Fs(1, 58) > 7.83$, $ps < .007$.

As predicted, in the control and experimental conditions of the feminine task, the interaction between gender and expectancies was significant, $F(1, 54) = 5.96$, $p < .02$; $F(1, 85) = 4.26$, $p < .05$, respectively. This indicates that women relied more on expectancies when evaluating their performance than men. On the feminine task in the experimental condition, the interaction between gender and performance was marginally significant, $F(1, 85) = 3.85$, $p < .06$, indicating that women's self-evaluations were relatively less influenced by performance than were men's. In the control condition of the masculine task, the interaction between gender and performance was significant, $F(1, 61) =$

4.80, $p < .05$. Again, women were relatively more influenced by self-consistency tendencies than were men. Because women's expectancies for the masculine task were low, this reliance on self-consistency led to an underestimation of performance.

Gender differences in Hits, False Alarms, Misses and Correct Rejects. Subjects' confidence statements for each question were analyzed in terms of the proportion of hits, false alarms, misses, and correct rejects. A hit is a correctly answered question for which the subject was highly confident (at least 80% sure) that it was answered correctly. A false alarm is an incorrectly answered question for which the subject was highly confident that it was answered correctly. A miss is a correctly answered question but the subject showed little confidence (less than 41% sure). A correct reject is an incorrectly answered question for which the subject showed little confidence.

Hits and misses were transformed into proportions by dividing each by a subject's performance score. False alarms and correct rejects were transformed into proportions by dividing each by a subject's number of incorrectly answered questions. A high proportion of false alarms indicates overly high confidence and a high proportion of misses indicates overly low confidence.

On the feminine task, men had significantly more misses than women i.e., more frequently had low confidence when they answered a question correctly, $F(1, 89) = 6.19$, $p < .02$. On the neutral task, men had fewer misses than women, $F(1, 107) = 11.43$, $p < .001$. On the masculine task, men had proportionately more false alarms i.e., more frequently had high confidence when they answered a question incorrectly, $F(1, 99) = 8.28$, $p < .005$. Women had more misses than men i.e., more frequently had overly low confidence when they answered a question correctly, $F(1, 99) = 37.83$, $p < .0001$ (see Table 2).

Gender differences in recall. The number of questions a subject recalled as having been answered correctly or incorrectly is expressed as proportions of the subject's total number of recalled questions. It was ascertained whether each recalled question had in fact been answered correctly.

There was a significant interaction between gender-typedness of task and gender on questions recalled as having been answered correctly, $F(2, 342) = 6.50$, $p < .002$. This indicates that the gender difference in recalling questions that the subject thought were answered correctly depends on the gender-typedness of the task. On the feminine task, there was no significant gender difference for the proportion of questions thought to have been answered correctly, $F(1, 110) < 1$. This indicates that on the feminine task there was no differential recall by gender. On the neutral and masculine tasks, evidence for differential recall was found, $F(1, 121) = 9.05$, $p < .003$; $F(1, 114) = 29.08$, $p < .0001$, respectively. Men often recalled questions as having been answered correctly, even though they had answered them incorrectly, whereas women often recalled questions as having been answered incorrectly, even though they had answered them correctly. Thus, for women information on believed failure is more available than for men. This differential recall plus women's reliance on self-consistency may explain women's underestimation of performance on masculine tasks.

Discussion

After partialling out the effect of performance, expectancies had a significant effect on self-evaluations, demonstrating the existence of self-consistency tendencies. Because of self-consistency, men's high initial confidence on masculine tasks affected their self-evaluations positively. The opposite pattern was obtained for women on masculine tasks, where low expectancies negatively biased their self-evaluations.

As predicted, on the masculine and feminine tasks, performance was by far the best predictor of self-evaluations for men. For women, expectancies played almost as important a role as did performance in predicting self-evaluations. This indicates that men's self-evaluations are more guided by their performance and women's self-evaluations are guided to a considerable extent by self-consistency. Because women's initial expectancies tend to be low on masculine tasks, this reliance on self-consistency when evaluating performance results in underestimations.

When examining the confidence data for individual questions on a masculine task it was found that, when a question was answered incorrectly, women appropriately have low confidence, whereas men wrongly show high confidence. But when the answer was correct, men tend to be more accurate self-evaluators by having high confidence, whereas women often demonstrate inaccurately low confidence.

Why is it important to demonstrate that women's self-evaluations are frequently inaccurately low? Positive self-perceptions, even if they are inaccurately high, are related to psychological health (Snyder, 1989; Taylor, Collins, Skokan, & Aspinwall, 1989), improved motivation, and task persistence (Abramson & Alloy, 1981). Low perceptions of performance negatively affect performance (Elliott & Dweck, 1988), persistence (Elliott & Dweck, 1988), expectancies for future performance (Phillips, 1987), aspirations (Phillips, 1984), and affect (Elliott & Dweck, 1988).

Thus, women's inaccurately low self-evaluations may have damaging consequences. For example, females who received high grades in math courses, but nevertheless had low expectancies for future grades, did not enroll in advanced math courses (Lantz & Smith, 1981). For males, it was only poor performance which led to an avoidance of math courses. Thus, men's future math taking behavior could be predicted by grades (performance), whereas women's math taking behavior could be predicted by low expectancies (self-consistency). This study of naturalistic behavior nicely supports the findings of this experiment regarding differential emphasis on self-consistency and performance by men and women.

But why do females who received superior grades in math develop low expectancies for future math grades? The present experiment has shown that one reason may be females' reliance on self-consistency. If females have low expectancies for math performance to begin with, they are likely to inaccurately assess their performance in math. If inaccurately low self-evaluations affect future expectancies negatively, females are unlikely to take more math in the future. This may par-

tially account for the underrepresentation of women in math (Eccles, 1987). Still, some vexing questions remain. Why would females have low expectancies for math to begin with and why does objective feedback such as grades not alter females' expectancies for future math courses?

Females are socialized to be modest, whereas males are taught to be confident regarding academic achievements (Phillips, 1987). The societal stereotype is that females are less competent than men (Feather & Simon, 1975; Feldman-Summers & Kiesler, 1974). Many parents have inaccurately low perceptions of their daughters' ability in such areas as math. These low perceptions eventually come to be shared by their daughters (Parsons, Adler, & Kaczala, 1982). Thus, females learn from parents and society to underestimate their competence. As this research has demonstrated, males and females learn their lessons well, i.e., women indeed tend to have lower expectancies than men. Unfortunately, because of females' reliance on self-consistency, once they have learned their lesson (to have low expectancies), they have difficulty unlearning it.

It is not too difficult to believe that when feedback about actual performance is absent, such as in the present research, biases such as self-consistency could come into play. But what about those cases where there is clear, unambiguous feedback regarding performance such as in the above-mentioned study by Lantz and Smith (1982). Why do so many females who receive feedback regarding performance in the form of high grades in math believe that they will do poorly in the future? The recall data may provide some insight here. On the masculine task, men were more likely to recall questions they believed they answered correctly, whereas women were more likely than men to recall questions they believed they answered incorrectly. Such biased recall is likely to affect self-evaluations. If a relatively high proportion of information on believed failure is mentally available when evaluating one's performance, this should negatively bias self-evaluation. Many of us have known individuals who, after receiving feedback on their performance, focus on and remember the tiny bit of criticism rather than the overwhelming amount of praise. Perhaps females who receive high grades in math focus on the negative aspects of their performance (mistakes) rather than the positive aspects (high grades), perceive their performance as failure and therefore avoid math in the future.

Because of the serious implications of underestimations of performance for self-confidence and psychological health more attention should be devoted to the investigation of gender differences in the accuracy of self-evaluations. Such research will not only elucidate the underlying processes of self-evaluation biases and therefore be of theoretical interest, but will also be of practical value by suggesting ways of eliminating women's underestimations of performance.

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Table 1. Means for Inaccuracy of Self-evaluations by Gender.

	Experimental Condition	Control Condition
Feminine Task		
Women	-1.2	-8.1[c]
Men	-4.5[a]	-2.7
Neutral Task		
Women	-5.8[b]	-4.4[a]
Men	-1.2	-5.6[a]
Masculine Task		
Women	-9.5[**c]	-4.3[*a]
Men	.6[**]	- .1

Note. Asterisk superscripts indicate significant gender differences. Letter superscripts denote whether an inaccuracy score is significantly different from zero.
* p < .05 ** p < .0001 [a] p < .05 [b] p < .01 [c] p < .0001

Table 2. Proportion of Hits, Correct Rejects, False Alarms, and Misses.

	Feminine Task		Masculine Task		Neutral Task	
	Women	Men	Women	Men	Women	Men
Question was answered correctly						
High confidence (HIT)	.72 *	.63	.56 ****	.84	.52 ****	.71
Intermediate conf.	.14	.16	.18 ***	.10	.27 **	.19
Low confidence(MISS)	.14 *	.22	.27 ****	.07	.22 ***	.11
Question was answered incorrectly						
High conf.(FALSE AL.)	.08	.10	.12 **	.26	.18	.24
Intermediate conf.	.28	.20	.24 ***	.33	.36	.39
Low conf. (COR. REJ.)	.64 **	.70	.64 ****	.35	.46	.37

Low confidence: 0-40 Intermediate confidence: 41-79
High confidence: 80-100

* p < .05 ** p < .01 *** p < .001 **** p < .0001